Texas Stream Team

…is a joint partnership with Texas Commission on Environmental Quality, U.S. EPA Region VI, Texas State University-San Marcos, and numerous partners.

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Watershed Education

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Water Quality Monitoring

Texas Stream Team

A non-profit environmental education organization focused on watershed education and Nonpoint Source (NPS) pollution prevention

Suite of Services

- Citizen Water Quality Monitoring Network
  - Core Monitoring (pH, D.O., S.C., field observations, Secchi disk, etc)
  - Advanced Monitoring (*E.coli*, Nitrates, Phosphates, Turbidity, etc)
- Watershed Education
  - Targeted Curriculum
  - Outreach Presentations
- Website Resources: Data Reports, Data Viewer, etc
- Partner Collaboration: River Authorities, Universities, etc
- Intensive Bacteria Surveys

Citizen Water Quality Monitoring Network

Texas Stream Team Citizen Scientists are monitoring on a monthly basis to determine ambient water quality conditions as “Natural Resource Witnesses” – they are the eyes and ears out on the water.

Data Uses:

- Problem Identification
- Research
- Education
- Local Decision Making
- BMP Effectiveness

Side by Side Overview

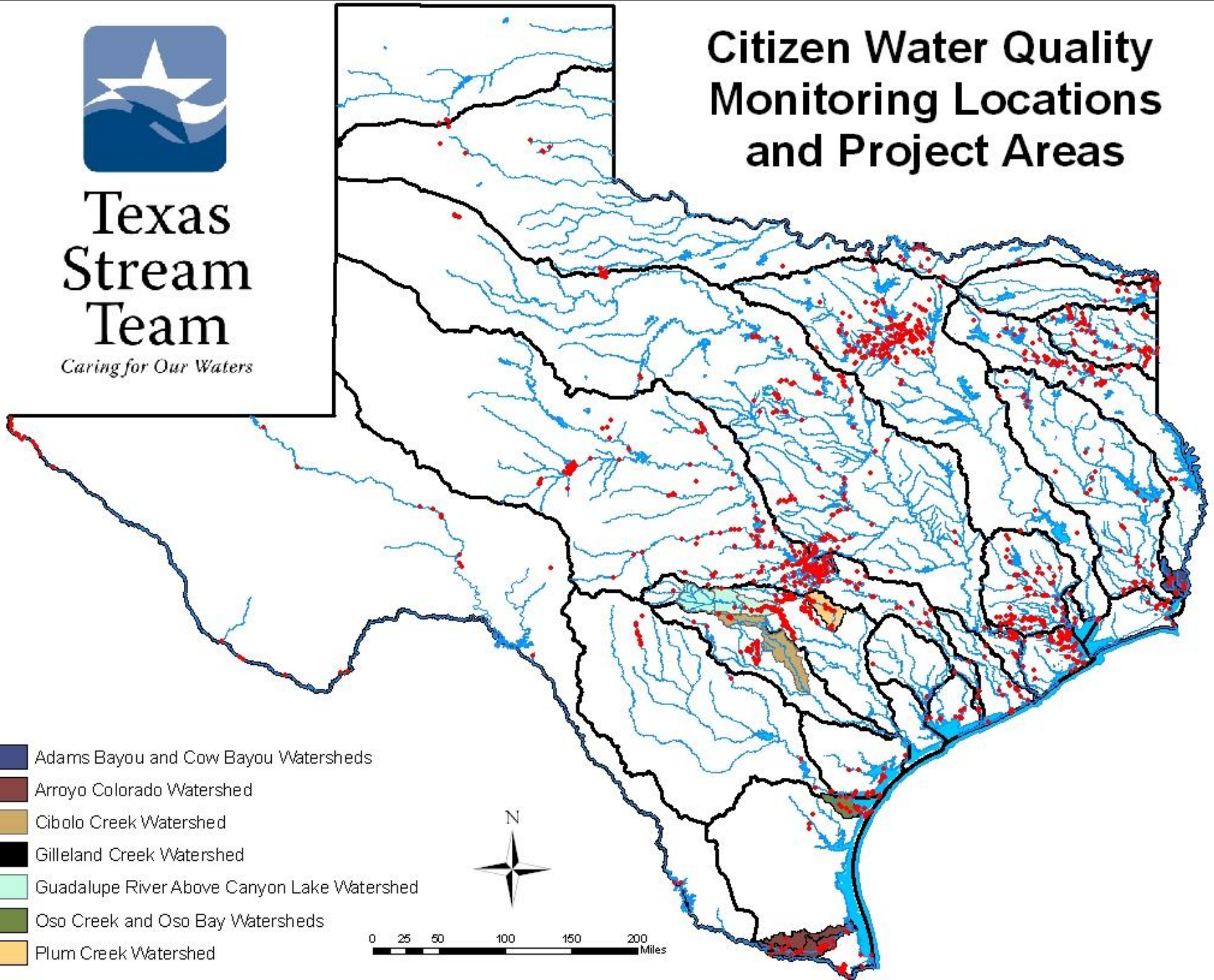
Parameter	Texas Stream Team LaMotte Kit	HydroLab Water Quality Sonde
Dissolved Oxygen (mg/L)	4.4	4.41
pH (standard units)	7.2	7.48
Specific conductance (µS/cm)	580	580

Cypress Creek at Blue Hole
8/27/2010
19:30

Citizen Water Quality Monitoring Locations and Project Areas

Texas Stream Team

Caring for Our Waters



Who?

- Lindheimer Master Naturalists (Guadalupe River, Canyon Lake)
- Texarkana College Earth Club
- San Marcos River Rangers
- Greater Lake Palestine Council
- For the Love of the Lake (White Rock Lake, Dallas)
- Amarillo ISD
- Cibolo Nature Center
- Wimberley Valley Monitors
- City of Denton
- American Youth Works
- City of Grand Prairie
- Luling River Pals


SPECIAL PROJECT AREAS
Arroyo Colorado
Cibolo Creek
Gilleland Creek
Guadalupe (above Canyon Lake)
Orange County
Oso Creek & Bay
Plum Creek

Enviroscape Watershed Model

Great way to communicate NPS to any age school children through:

- Hands on activities

- Visual sense of learning

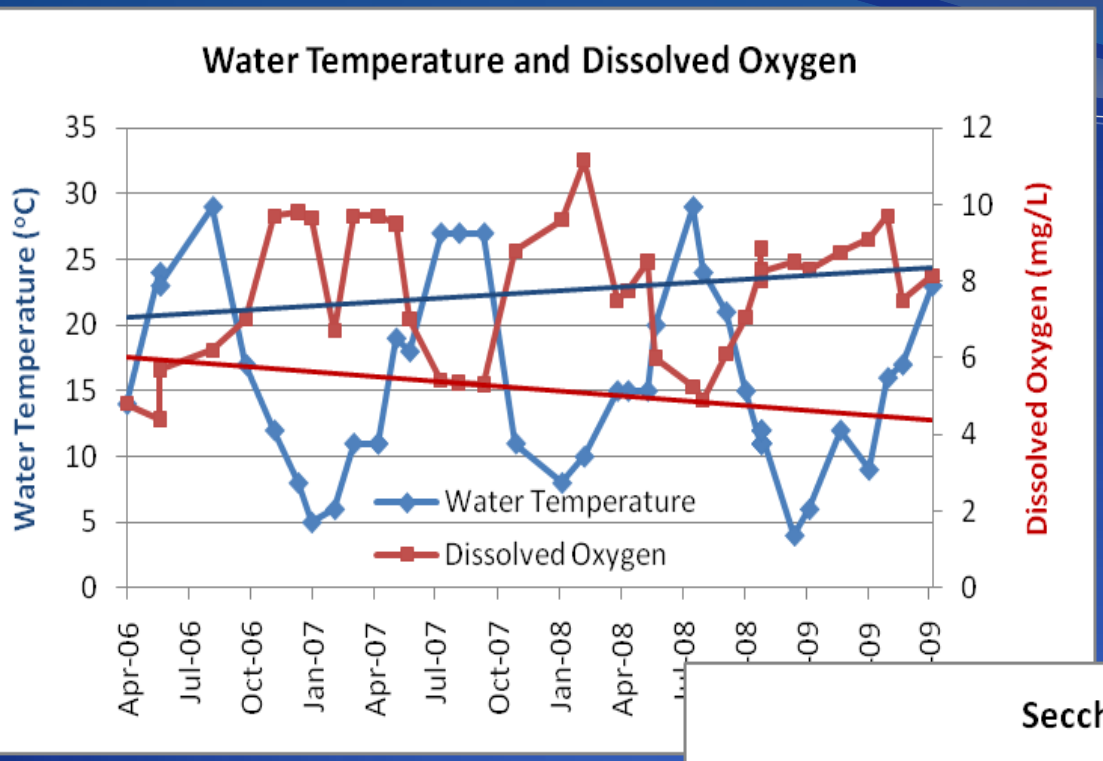
- Practical application

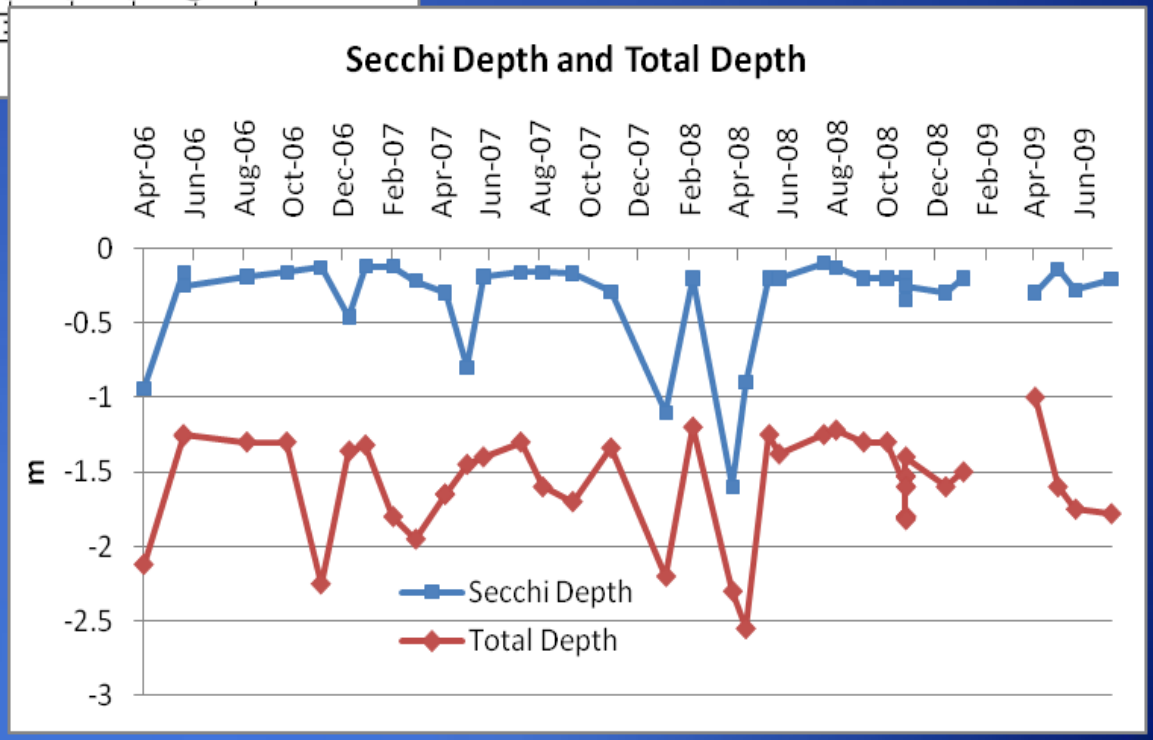
Activities in the Red River Basin

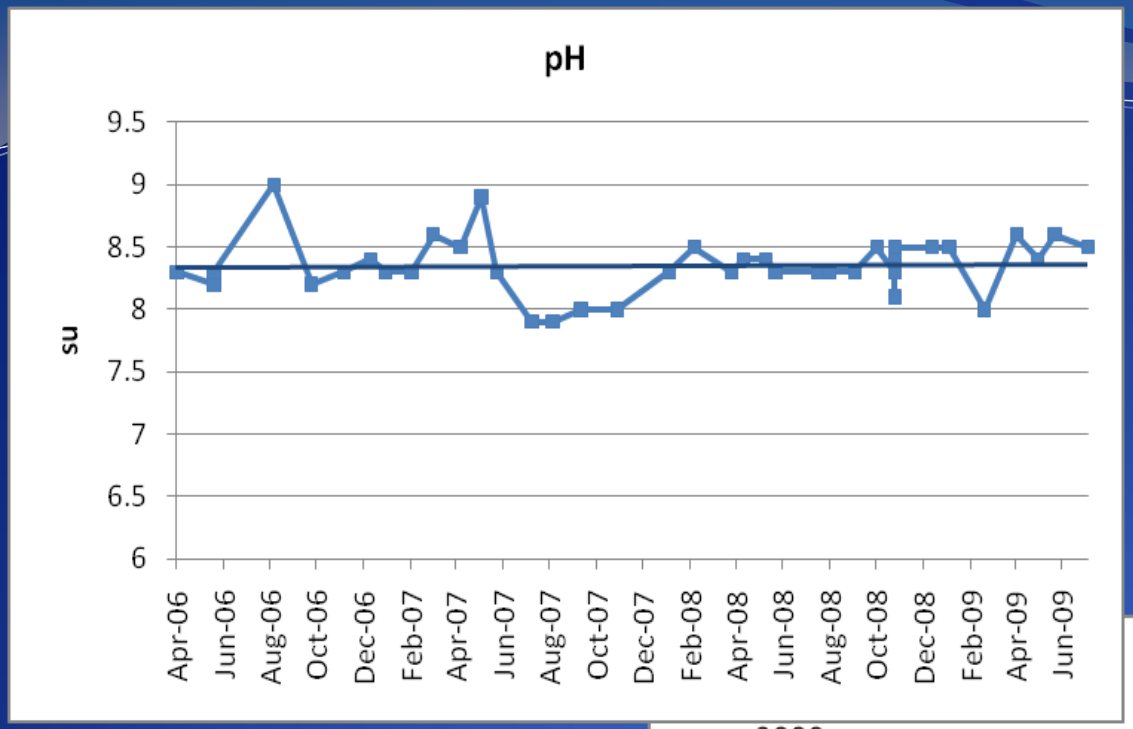
- Have been supporting teachers in Amarillo for almost 20 years
- Presented services to Lake Texoma meeting in December 2009 about a possible collaborative effort

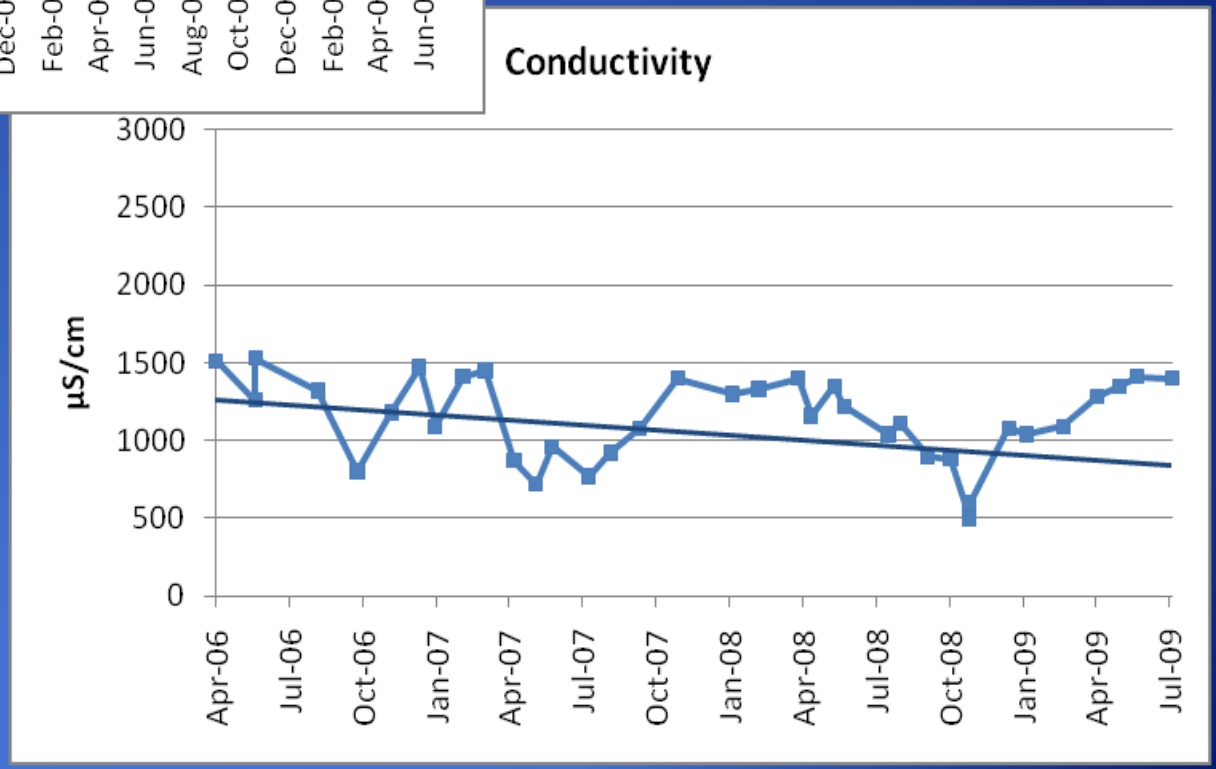
DATA from SE Park Lake

Southeast Park Lake Amarillo						
Parameter	#	% Complete	Min.	Mean.	Max.	Std. Dev.
Sample Time	45	98	8:00	10:23	16:00	1:33
Specific Conductivity (µS/cm)	46	100	500	1023.7	1530	333.16
Total Depth (m)	45	98	1	1.59	2.55	0.33
Dissolved Oxygen (mg/L)	46	100	4.4	7.81	11.15	1.64
Secchi Depth (m)	45	98	0.1	0.32	1.6	0.29
Water Temperature (°C)	46	100	4	15	29	6.65
pH (su)	46	100	7.9	8.35	9	0.22


Water Temperature and Dissolved Oxygen
Water Temperature (°C)
Dissolved Oxygen (mg/L)
35
30
25
20
15
10
5
0
12
10
8
6
4
2
0
Water Temperature
Dissolved Oxygen
Apr-06
Jul-06
Oct-06
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08


Secchi Depth and Total Depth
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
Feb-09
Apr-09
Jun-09
0
-0.5
-1
-1.5
-2
-2.5
-3
m
Secchi Depth
Total Depth


pH
su
9.5
9
8.5
8
7.5
7
6.5
6
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
Feb-09
Apr-09
Jun-09


Conductivity
µS/cm
3000
2500
2000
1500
1000
500
0
Apr-06
Jul-06
Oct-06
Jan-07
Apr-07
Jul-07
Oct-07
Jan-08
Apr-08
Jul-08
Oct-08
Jan-09
Apr-09
Jul-09

Recruitment of New Volunteers

- Texas Stream Team trains, equips, and supports volunteers in every major basin in the state
- Trainings can also be conducted by, or in collaboration with, partner entities
- Trainings can either be done over 2 separate days or can be done in a one day, tri-phased format. Phase I is a demonstration of the monitoring procedures, Phase II is do-it-yourself monitoring, and Phase III is completely independent of trainer input
- Trainee values are compared to trainer values after each Phase and progress is assessed along the way
- Texas Master Naturalist Chapters, school teachers, students, active citizens

Success Story in the Houston Area

Texas Stream Team volunteer Luis Stuart, who monitors Spring Creek in the Houston area, began noticing an absence of frogs, turtles, and minnows at his site over a few months until the aquatic life count came down to zero. Stuart reported this to his local partner, the Houston-Galveston Area Council (HGAC) and the ensuing TCEQ investigation found that two wastewater treatment facilities were discharging excessively high levels of chlorine into the waterway. Once the proper adjustments were made, Stuart began noticing the wildlife spring back to life once again.

Kim Laird, Environmental Investigator for TCEQ on this case:
"Because of Mr. Stuart's efforts, we were able to find out about the problem and do something about it."

Great example of how Citizen Water Quality Monitoring can lead to pollution reduction and the restoration of water bodies!


Thank you

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